
OPEN MARKET OPERATIONS
DURING 1995

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INTRODUCTION

During 1995, the Trading Desk at the Federal Reserve Bank of New York managed reserve conditions with the objective of maintaining the federal funds rate around the level desired by the Federal Open Market Committee. The need for permanent reserve additions was much lower than in the preceding few years, mostly reflecting an unanticipated sharp slowing in currency growth and a reduction in reserve requirements caused by the spread of sweep programs at commercial banks. Temporary operations that are used to meet modest or short-lived swings in reserve supply and demand remained heavily skewed towards adding reserves between outright operations.

THE MONETARY POLICY AND ECONOMIC BACKDROP

Monetary policy during 1995 was formulated against a background of modest price pressures and declining inflation expectations and a slowing in the rate of economic expansion from the rapid pace of the preceding year. At the start of the year, inflation remained subdued, but measured utilization rates stood at levels associated historically with intensifying price and wage pressures. Amid signs that economic activity was continuing to advance at a substantial pace, the Federal Open Market Committee (FOMC) took action at its February meeting to raise the federal funds rate by one-half of a percentage point to about 6 percent, matching the size of the increase in the discount rate approved by the Board of Governors that same day. These policy actions proved to be the last in the sequence of restraining moves begun one year earlier (Table 1).

Adapted from a report to the Federal Open Market Committee by Peter R. Fisher, Executive Vice President of the Bank and Manager of the System Open Market Account. Spence Hilton, Markets Officer, was primarily responsible for the preparation of this report. Other members of the Markets Group assisting in the preparation were John Partlan, Gerald Cohen, Eileen Spinner, Joanna Barnish, Theodore Tuplan, Robert Van Wicklen, and Joel Kent.

By midyear, the pace of economic expansion had slowed substantially. Inflationary pressures had diminished, partly as a result of the move to policy restraint begun in 1994, and the FOMC reduced the funds rate by one-quarter percentage point at its July meeting. Over the balance of the year, price performance was somewhat more favorable than anticipated, inflation expectations receded, and the Committee agreed on a further one-quarter percentage point reduction in the funds rate at its December meeting.

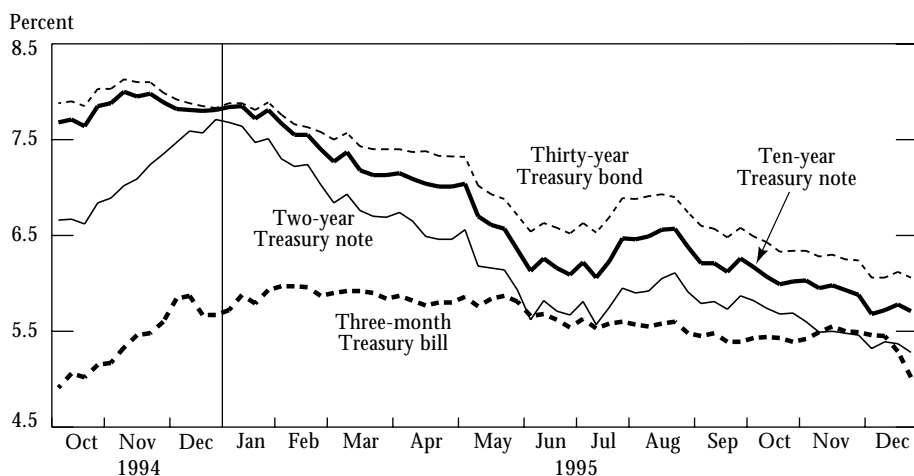
The favorable inflation outlook and moderation in economic activity produced a steady decline in market interest rates that was only briefly interrupted in the summer (Chart 1). Prospects for meaningful progress in reducing federal budget deficits in future years added momentum to the downward trend in rates. Yields on Treasury coupon securities declined by 200 to 250 basis points on balance over the year. Short-term Treasury bill rates posted more modest declines, but at the end of the year shorter term yields stood at levels that reflected widespread market expectations of further policy moves in the months beyond.

IMPLEMENTATION OF POLICY

RESERVE MANAGEMENT PROCEDURES

In carrying out the FOMC's policy directives, the Desk seeks to maintain the federal funds rate around the level indicated by the Committee. Keeping the funds rate close to a desired level entails using open market operations to adjust the Systems portfolio of domestic securities to ensure that the total reserve liabilities of the Federal Reserve are in line with the reserve demands of depository

Chart 1
YIELDS ON TREASURY SECURITIES



Notes: All rates are averages for weeks ending Wednesdays. Treasury bill rates are discount rates; note and bond yields are constant maturity yields.

institutions. Over time, most of the permanent expansion in the Systems securities holdings has supported growth in currency and higher demand for reserve balances stemming from rising reserve requirements. Temporary open market operations are used extensively to meet residual needs arising from short-lived swings in reserve supply or demand that can pressure the federal funds rate but which are also subject to considerable forecast uncertainty.

Through its operations, the Desk endeavors to provide in each maintenance period a supply of reserves that enables all banks to meet their two-week reserve requirements and that is sufficient to meet daily demands. As a first step, an objective or path for nonborrowed reserves is developed for each period. The path is a projection of the reserves depository institutions must hold to meet their reserve requirements plus any desired excess holdings for the period, less an amount of reserves that the Desk anticipates will be created by borrowing at the discount window. The overall volume of reserve operations needed in a maintenance period to keep the funds rate close to its desired level is estimated by comparing the path with projections of the supply of nonborrowed reserves forthcoming from market factors over the same two-week period.

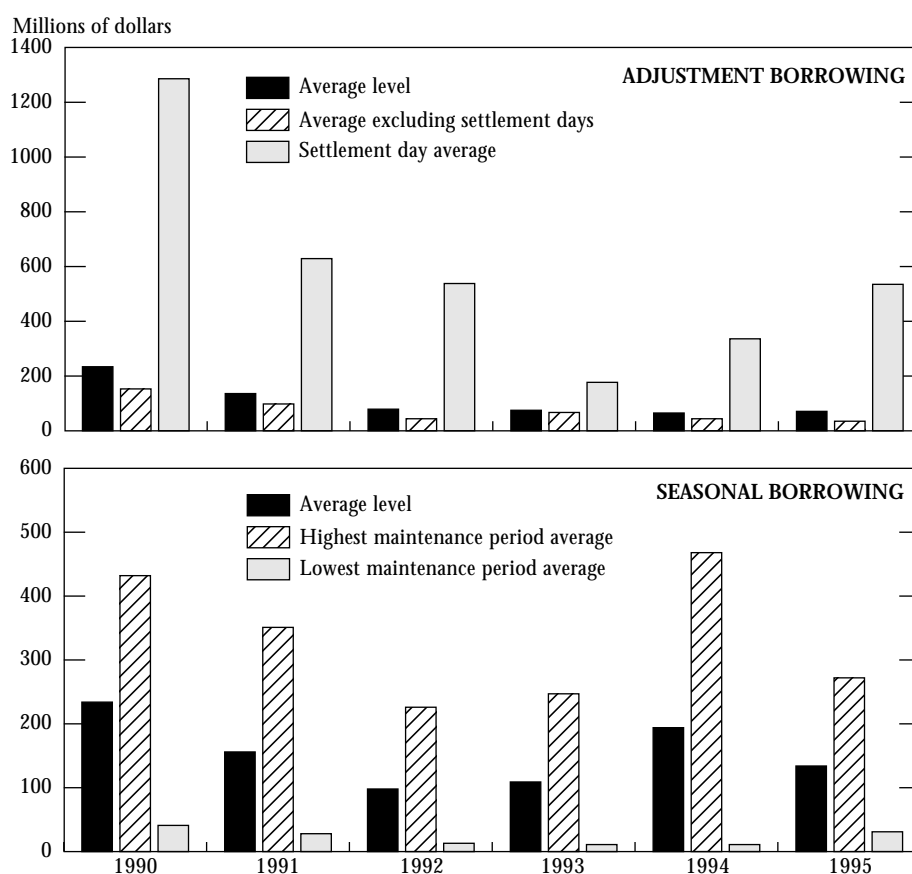
Borrowing at the discount window under the adjustment credit program once had been closely associated with the spread between the level of the federal funds rate sought by the Committee and the discount rate. In recent years, there has not been a systematic relationship between adjustment borrowing and this spread, and typical levels of adjustment borrowing have been negligible. With borrowing now ordinarily expected to make up just a small fraction of total reserve supplies, the Desk must ensure that almost all reserve demands can be met with nonborrowed reserves.¹ Nonetheless, the discount window remains a critical source of supply when nonborrowed reserves are scarce. A bank may turn to the discount window on a settlement day when it cannot secure alternative funding to meet its requirements or at other times to avoid an end-of-day overdraft on its Fed balance, although the discount window is usually tapped only after the funds rate has been bid up to high levels (Chart 2).

Estimates of the daily pattern of nonborrowed reserve supply and demand guide the selection of specific open market operations within a period. To a large degree, reserve operations smooth daily deficiencies or surpluses measured as the difference between the estimated level of nonborrowed reserves available each day and the two-week average demand-driven objective in place for the period although demand for reserves may be very unevenly distributed throughout a period, so the supply of nonborrowed reserves that keeps the funds market trading close to the desired rate may vary over the period.

The Desk's knowledge of operating factors affecting reserve supply, required reserves and both the level and pattern of desired reserve holdings over a period is necessarily imperfect, and such estimates are subject to substantial revision. When daily reserve supplies are estimated to be in line with the path but the funds rate nonetheless deviates from the desired level, the divergence may be signaling an unrecognized shortage or surplus. On the other hand, deviations in the funds rate may reflect misperceptions among bank treasurers and federal funds traders about the true availability of aggregate supplies. At other times, reserve balances can be distributed in a way that does not allow funding markets to pair surplus and deficient banks efficiently.

Small deviations in the funds rate from the expected level often dissipate quickly and may require no response. Large or persistent deviations may be taken into account in the formulation of reserve

Chart 2
ADJUSTMENT AND SEASONAL BORROWING



Note: Each calendar year includes all maintenance periods with its settlement day in that year.

operations because they might reflect needs or preferences of banks that are not captured in the reserve data available to the Desk.

OPEN MARKET OPERATIONS DURING 1995

Reserve Patterns and Outright Open Market Operations

Over time, most of the permanent expansion of the Systems portfolio of domestic securities achieved through outright operations has supported growth of currency and of reserves needed to meet the requirements of depository institutions, both of which are Federal Reserve liabilities. In 1995, net changes in currency and reserve requirements necessitated a much smaller increase in the portfolio than occurred in recent years. Measured from year-end to year-end, currency in circulation increased \$20 billion in 1995, compared with a record \$37 billion the previous year and similar increases in 1992 and 1993 (Table 2). Much of the slowing in currency growth was attributable to reduced foreign demand, stemming in part from increased economic stability in several foreign countries.

At the same time, demand for reserves to meet reserve requirements fell for a second consecutive year. Required reserves fell \$3 billion in 1995, after dropping by almost \$2 billion in 1994, as banks implemented sweep programs. Partly offsetting the impact on total reserve demand, many of the banks that implemented these sweep programs raised their clearing balances by \$1 billion.

The behavior of other reserve factors on balance had a small impact on the need for outright transactions. As part of a broad support package for Mexico, \$2.5 billion of Special Drawing Rights held by the Exchange Stabilization Fund was monetized. But the level of matched-sales purchase transactions undertaken with other central banks (the foreign RP pool) rose by \$4.5 billion over the year and was expected to remain at a high level for an extended period.²

Over the year, \$4 billion of maturing securities were redeemed, which contributed to reserve shortages. Many of these redemptions consisted of maturing original issue seven-year Treasury notes, a discontinued maturity. The Desk also redeemed \$900 million of maturing holdings in October at a 3-month bill auction in light of the Treasury's sharp cutback in the size of the auction that was made in order to remain under its debt ceiling. Federal agency securities were redeemed when there was no suitable replacement offering, and holdings of agency securities fell by about \$1 billion to a level of \$2.5 billion, the fifteenth consecutive yearly decline.

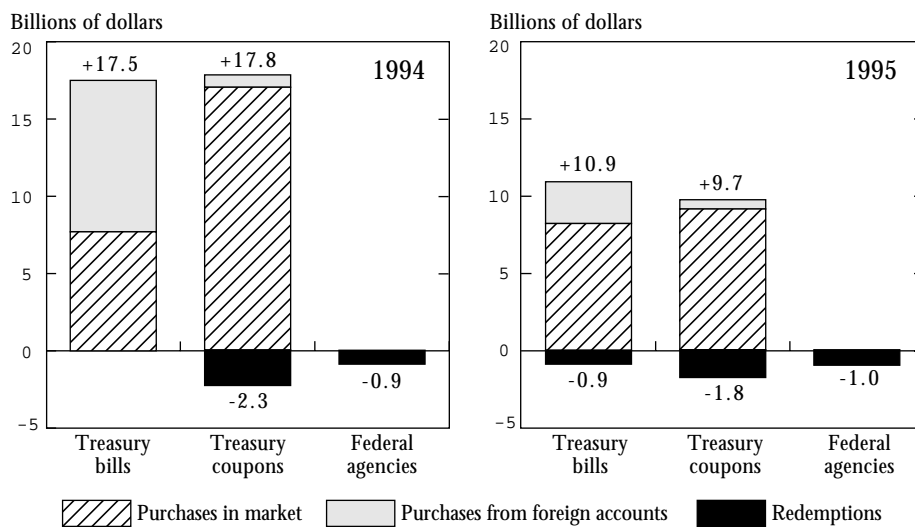
Primarily reflecting the slower growth of currency and drop in required reserves, the total par value of the Desks outright purchases fell to about \$20 billion in 1995 from \$35 billion in 1994 (Chart 3). Most of these purchases were arranged when large and sustained reserve shortages were

projected to develop. The Desk entered the market on four occasions, down from six market entries the previous year.³ Purchases from foreign accounts were also cut back sharply.

As in each of the two preceding years, there were no outright sales of any Treasury or agency issues in 1995. On balance, the overall portfolio grew a net \$17 billion, far below the \$32 billion addition of the preceding year and the smallest rise since 1990, bringing the total par value of the Systems holdings at the end of 1995 to \$393 billion (Chart 4). These various outright transactions and the Desks auction rollover actions lengthened the average maturity of the System portfolio of Treasury securities slightly, by one month, to approximately thirty-nine months.

Near the end of the year, the Desk adopted a new method for purchasing Treasury coupon securities in the secondary market in order to speed up the processing time of each market entry. In the past, the Desk would solicit propositions on all outstanding Treasury coupon securities in a single operation. With just over 200 issues outstanding and a sizable range of prices often offered for each issue, the turnaround time for evaluating the propositions was typically almost one hour. During this interval, primary dealers were exposed to price movements on the securities they submitted. Under the new framework, instead of a single large transaction, total purchases are divided into separate tranches by maturity, and a smaller operation in each sector is arranged on consecutive business days. The new procedure cuts down the time needed to process the operation and,

Chart 3
SYSTEM OUTRIGHT OPERATIONS



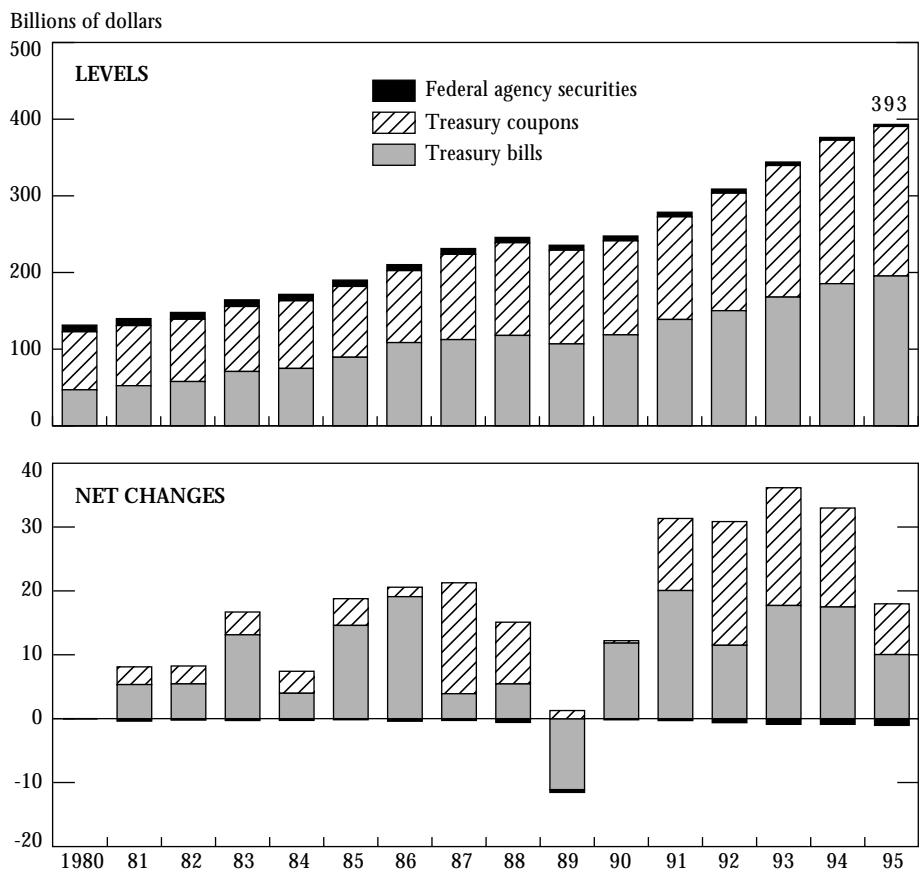
Notes: Purchases are positive values; redemptions are negative values. There were no outright sales of securities in 1995 or 1994.

therefore, the level of risk to primary dealers. The Desk has also found that the shorter turnaround time makes it easier to arrange these operations in the morning without interfering with its temporary transactions. The first of these newer operations was undertaken on November 30, and the fourth and final part was executed on December 6. The turnaround time for each leg of the operation was reduced to ten to twenty minutes.

Temporary Operations

Temporary, or self-reversing, operations are used to meet imbalances between reserve supply and demand that are not expected to persist or that are relatively small but which nonetheless would place pressure on the federal funds rate. Most of these operations are used to add small to moderate amounts of reserves because the Desks outright operations are usually structured to leave

Chart 4
SYSTEM PORTFOLIO OF TREASURY AND FEDERAL AGENCY SECURITIES
 Year-end Holdings

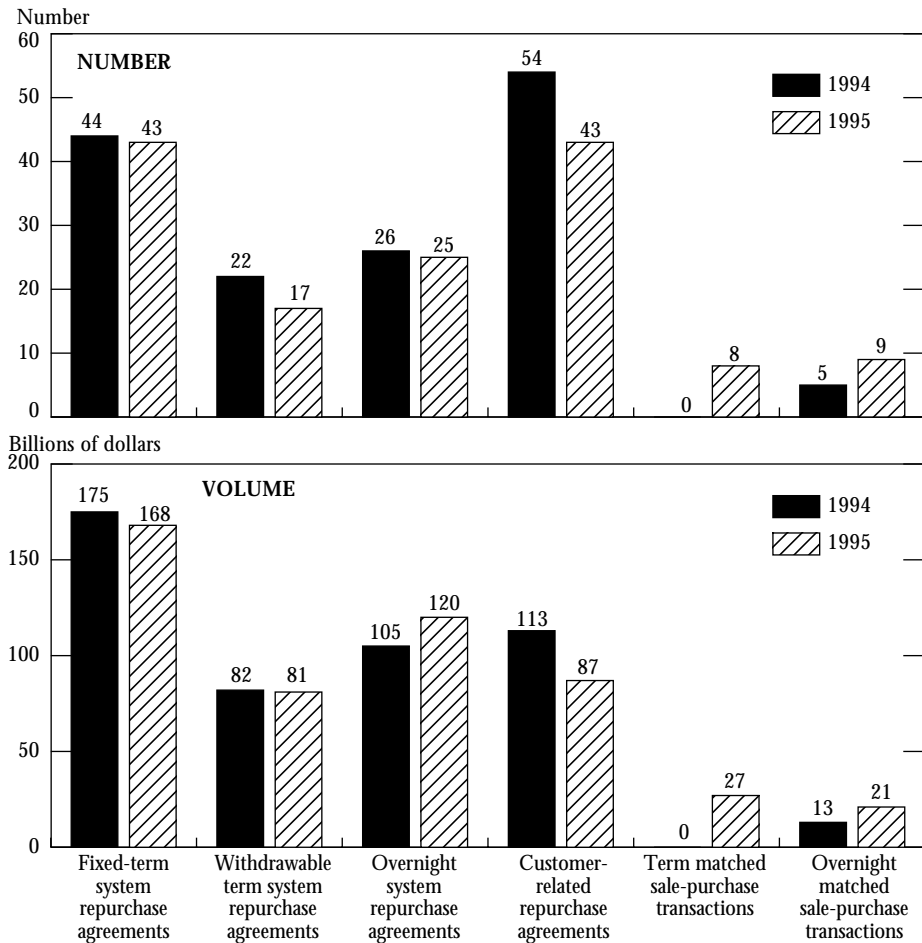


reserve shortages of limited size in most maintenance periods. Large temporary reserve additions or draining operations may occasionally be needed to meet seasonal swings in some operating factors and in reserve demands.

In number and type, the temporary operations selected in 1995 were fairly similar to the previous year (Chart 5). The Desk did drain reserves more frequently than in preceding years, largely because the seasonal reserve surpluses that often emerge early each year were more substantial in 1995 than in recent previous years. The frequency of customer-related repurchase agreements (RP) fell quite a bit.

In a typical maintenance period characterized by a moderate-sized reserve shortage, the Desk often arranged successive multiday, nonwithdrawable operations up through the second weekend. These

Chart 5
SYSTEM TEMPORARY TRANSACTIONS



operations were frequently supplemented by shorter term operations if circumstances warranted. After the second weekend, withdrawable multiday System RPs or overnight operations were employed more often in order to respond to revisions in estimates of reserve supply or demand during the brief time that remained in the period.⁴ When substantial reserve needs were projected in a maintenance period, overlapping term operations were sometimes used. In one such instance, on December 21, a fourteen-day System RP was arranged, a maturity last used in 1978. This operation spanned the entire maintenance period including the year-end date when substantial reserve pressures often arise and was supplemented by several other operations.

In structuring temporary operations, the Desk took account of the intraperiod pattern of demand for reserves, which was often revealed by the behavior of the funds rate. Banks continued to prefer holding somewhat more reserves in the second half of a maintenance period than in the first half, a pattern that became more widespread in 1991 as banks adjusted to working with low required operating balances following cuts in reserve requirements (Table 3). All depository institutions, and in particular large ones, accumulated an especially sizable amount of excess reserves on the last day of the period.

SWEEP ACCOUNTS AND REQUIRED OPERATING BALANCES

During 1995, depository institutions use of sweep programs for retail customers expanded dramatically. In such programs, funds from reservable household checking deposits are temporarily placed in nonreservable money market deposit accounts. In addition to distorting the relationship between the M1 and M2 aggregates, sweeps reduce total required reserves within the banking system. A critical issue going forward is whether required reserves may fall to levels that will complicate reserve management and increase the volatility of the federal funds rate. Although the current round of sweeps began in January 1994, activity remained moderate for much of that year and into the first half of 1995.⁵ In the later part of 1995, however, the popularity of these programs soared. The cumulative amount of sweeps through June was \$22 billion and climbed to \$54 billion by the end of the year.⁶ The net monthly increase in December was \$9 billion, the largest of the year.

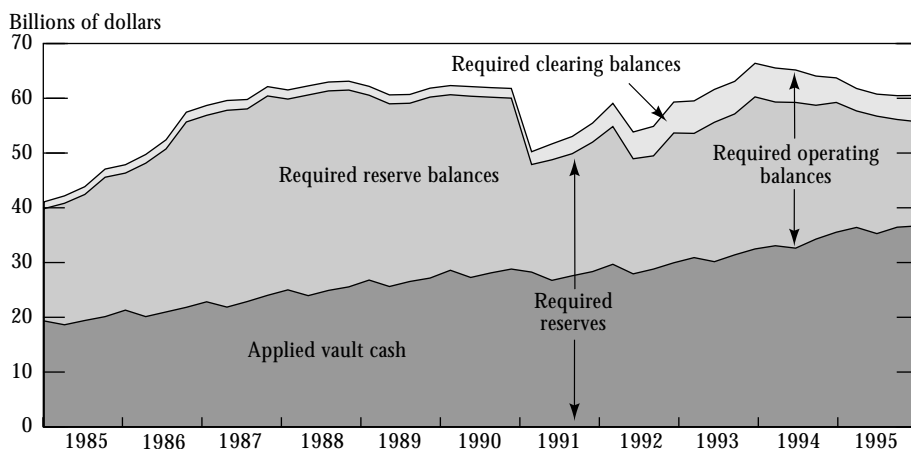
Assuming a roughly 10 percent average reserve requirement, the \$45 billion of cumulative sweeps implemented during 1995 translated into \$4.5 billion fewer reserve requirements for the total banking system. This drop more than accounts for the total decline in required reserves over 1995. At the end of 1995 the level of required reserve balances, which are the balances banks must hold at the Federal Reserve in order to meet reserve requirements not satisfied by vault cash, was \$4.1 billion below its level one year earlier (Chart 6). To avoid serious reserve management

problems, a number of the banks that activated sweep accounts boosted required clearing balances, so that the fall in required operating balances, which includes these clearing balances, was somewhat smaller.

The popularity of sweep accounts may increase the number of days when operating balances are not sufficient to support ordinary clearing needs of depository institutions. Without any Desk action, the likely result would be an increased incidence of firm money market pressures of the kind that arise currently when payment flows in the banking system are particularly heavy. But even when reserve balances at the Fed are adequate for meeting the clearing demands of banks, a low level of required operating balances can complicate the task of a bank reserve manager. Everyday uncertainties are more likely to bring a banks reserve position closer to the two extremes of either ending overdrawn or holding an excess position that is difficult to work off on subsequent days because required operating balances are low. The Desk can also have more difficulty predicting the level of reserve balances banks would prefer to hold each day. In this environment, the federal funds rate can become more volatile.

When reserve requirements were first cut sharply in 1991, the sometimes extreme volatility in the federal funds rate that immediately followed was seen partly as a byproduct of banks adapting to low required operating balances. The decline in reserve requirements in 1995 brought on by increased sweep activity has not led to a replay of this extreme volatility. As noted before, many institutions implementing sweeps have partly compensated by increasing their required clearing

Chart 6
RESERVE MEASURES



Notes: All figures are quarterly averages. Reserve requirements are the sum of required reserve balances and applied vault cash. Required operating balances are the sum of required reserve balances and required clearing balances.

balances, possibly helping to curb an increase in volatility. Nonetheless, the level of required operating balances continues to trend downward. Whether these declines eventually cause severe reserve management difficulties remains to be seen.

What Is a Sweep?

Simply stated, a sweep occurs when funds are automatically shifted from one account to another. Many sweeps have recently been implemented by large commercial banks for their consumer accounts. Transfers are usually made from a reservable checking account, such as a Negotiable Order of Withdrawal (NOW) account to a non-reservable money market deposit account (MMDA). The bank benefits from lower reservable deposits and hence lower reserve requirements.

Over the past two years, banks primarily have adopted one of the following two types of consumer-related sweeps: a NOW sweep or a weekend sweep. The most common is the NOW sweep. This transaction involves two separate sub-accounts, a NOW and an MMDA. At the starting date, the bank will shift funds in excess of a designated minimum from a NOW balance into an MMDA. In subsequent days, if presentments happen to exceed the account holder's NOW balance, amounts sufficient to pay the presented items and restore the minimum NOW balance are then transferred from the customer's MMDA to the NOW account. This process continues until the sixth transfer, the legal maximum, when all the remaining swept balances in the MMDA are transferred back to the NOW account. They are then left in the NOW until the start of the new month, when the cycle begins all over again.

The second type of sweep, the weekend sweep, is a hybrid of the NOW sweep. As represented by the title, fund transfers are limited to weekends. At the close of business on a Friday, entire balances are shifted from NOW accounts into MMDAs. These are transferred back on Monday or on the first business day after the weekend. The net impact is that reservable deposits are reduced on three of the seven days of the week. In addition, the number of sweeps per month does not need to be monitored because the maximum allowable number, six, exceeds the largest possible number of weekends. Only about 10 percent of sweeps are weekend sweeps, and most banks initiating this activity have indicated that these sweeps are an interim step toward a full-time sweep arrangement.

*Table 1***SPECIFICATIONS FROM DIRECTIVES OF THE FEDERAL OPEN MARKET COMMITTEE AND RELATED INFORMATION**

Date of Meeting	Discount Rate (Percent)	Expected Federal Funds Rate (Percent)	Borrowing Allowance for Deriving NBR Path (Millions of Dollars) ^a
12/20/94	4.75	5.50	125 100 on 1/5 ^b 75 on 1/12 ^b
1/31 to 2/1/95	5.25 on 2/1	6 on 2/1	75 on 2/1 ^c
3/28/95	5.25	6	75 100 on 4/13 ^b 150 on 4/27 ^b 175 on 5/11 ^b
5/23/95	5.25	6	175 225 on 6/22 ^b
7/5 to 7/6/95	5.25	5.75 on 7/6	250 on 7/6 ^d 275 on 7/20 ^b
8/22/95	5.25	5.75	275
9/26/95	5.25	5.75	275 250 on 10/12 ^b 200 on 10/26 ^b 100 on 11/9 ^b
11/15/95	5.25	5.75	100 75 on 11/24 ^b
12/19/95	5.25	5.50 on 12/19	75 ^e

^a The borrowing allowance associated with the expected federal funds rate.

^b Change in borrowing assumption reflects technical adjustment to account for actual or prospective behavior of seasonal borrowing.

^c The assumption was unchanged because the full effect of the discount rate increase was allowed to show through to the federal funds rate.

^d The change in reserve pressures was **not** expected to have an impact on borrowing. This change in the borrowing assumption reflects a technical adjustment to account for actual or prospective behavior of seasonal borrowing.

^e The allowance was unchanged because the change in reserve pressures was not expected to have an impact on borrowing.

*Table 2***REQUIRED RESERVES AND FACTORS AFFECTING
NONBORROWED RESERVES**

Billions of Dollars

	Maintenance Period Ended 1/3/96	Change during	
		1995 ^a	1994 ^b
Required Reserves	57.3	(3.1)	(2.0)
Operating Factors ^c			
Foreign currency ^d	16.4	(0.9)	(2.1)
U.S. currency in circulation	423.4	(20.4)	(37.2)
Treasury balance	6.7	0.3	1.4
Float	0.9	0.2	(0.6)
Special drawing rights	10.2	2.1	0.0
Foreign deposits	0.2	0.0	(0.1)
Applied vault cash	37.4	0.9	3.2
Foreign RP pool ^e	12.5	(4.4)	(0.6)
Required clearing balances ^f	5.2	(1.0)	2.1
Other items	21.1	0.2	2.1

^a Change from maintenance period ended January 4, 1995 to that ended January 3, 1996.

^b Change from maintenance period ended January 5, 1994 to that ended January 4, 1995.

^c Sign indicates impact of changes in operating factors on reserves. All items are biweekly averages.

^d Acquisition value plus interest. Revaluations of foreign currency holdings are included in Other items.

^e Includes customer-related repurchase agreements.

^f Clearing balances are a source of reserve demand, but in this accounting framework they are counted as a charge against nonborrowed reserves.

Note: Declines in holdings are shown in parentheses.

Table 3
AVERAGE EXCESS RESERVE HOLDINGS
Millions of Dollars

	1990	1991	1992	1993	1994	1995
All depository institutions						
Period average	933	1,206	1,020	1,083	1,074	988
First week	804	845	376	169	691	540
Second week	1,062	1,567	1,664	1,997	1,457	1,437
Settlement day	2,674	5,022	4,292	3,422	630	4,040
Large institutions						
Period average	68	157	79	66	78	49
First week	(65)	(103)	(439)	(659)	(138)	(197)
Second week	200	416	597	791	295	294
Settlement day	1,078	2,987	2,322	1,243	(1,184)	1960
Small institutions						
Period average	865	1,049	940	1,017	995	940
First week	869	948	815	828	828	737
Second week	862	1,151	1,066	1,206	1,163	1,143
Settlement day	1,596	2,035	1,970	2,179	1,814	2,080

Notes: Negative numbers are in parentheses. Each calendar year includes all maintenance periods having its settlement day in that year.

APPENDIX: FORECAST ACCURACY

On average, the accuracy of the projections of market factors during 1995 was comparable to the 1994 performance at each stage of the maintenance period. Improvements in forecasting the Treasury balance were counterbalanced by a slight deterioration in forecasting currency and the foreign RP pool (see table below).

In general, forecasts of required reserves during 1995 were mildly better than 1994 projections: forecasts made at the beginning and middle of the maintenance period improved in 1995 relative to 1994, while those made at the end of the period were only slightly worse. As noted above, required reserves registered a sizeable decline in 1995 as a result of sweep accounts; however, because advance notice of the timing of these sweeps was generally available, this information was incorporated into the projections of deposits and required reserves at the start of a period.

Estimates of the Treasury's balance at the Fed made on the first day of the maintenance period showed dramatic improvement in 1995 relative to 1994. The largest errors were in the periods around the April and June tax payment dates. During these times, the Treasury's cash balance often exceeded the capacity in the Treasury tax and loan note accounts at commercial banks.⁷

Projections of currency made on the first day of the maintenance period were slightly worse during 1995 than in 1994. Most of the errors occurred in maintenance periods when a typical build-up in currency was expected but did not happen. The weaker growth was related in part to reduced foreign demand, which was consistent with increased economic stability in several foreign economies where demand for U.S. currency previously had been strong.

APPROXIMATE MEAN ABSOLUTE ERRORS FOR FORECASTS OF RESERVES AND VARIOUS OPERATING FACTORS

Millions of Dollars

	1995			1994		
	First Day	Midperiod	Final Day	First Day	Midperiod	Final Day
Required Reserves	235-280	135	70	285-340	160-170	40-65
Factors	710-740	415-525	65-70	710-750	425-465	65-75
Treasury	385-390	285-290	50-60	610	285-305	45-50
Currency	550-690	175-255	20-40	500-515	180-205	15-25
Float	215-240	135-155	30-50	220-250	140-160	25-45
Pool	340	155	10	240	90	10
Other items	175	110	50	190	90	35

Note: Rounded to the nearest \$5 million. A range indicates different errors for the New York Reserve Bank and Board of Governors staffs' forecasts.

ENDNOTES

1. With a borrowed reserves objective, monetary policy actions giving rise to a change in the spread between the funds and discount rates normally would lead to a new borrowing allowance being incorporated in the path. But reflecting the more recent behavior of adjustment borrowing, this allowance was not changed for the two policy easings implemented in 1995. The Desk continued to make changes to reflect actual or anticipated movements in the seasonal component of the borrowing allowance.
2. Investments in the pool drain reserves when foreign institutions shift dollar holdings into their Federal Reserve accounts, which are then invested on an overnight basis by purchasing some of the Systems securities.
3. The Desk bought \$4.5 billion (par value) of coupon securities on April 4, \$4.4 billion of Treasury bills on May 31, and \$3.8 billion of bills on November 8. Then, in four linked operations from November 30 through December 6, the Desk purchased a total of \$4.6 billion of coupon issues. The Desks new method of arranging outright coupon transactions is described below.
4. Most operating factors affecting nonborrowed reserve supplies are subject to revision at any point in the period. The estimates of required reserves and applied vault cash for the two-week period are updated on each Tuesday, Wednesday, and Thursday. Revisions coming late in the period can significantly affect the remaining need.
5. Consumer sweep activity is relatively new, facilitated by more sophisticated computer systems at banks. Banks have a long history of shifting, or sweeping account balances of businesses, justified on a cost basis by the large volume transfers that are made. In a business sweep, deposits are usually transferred from a demand deposit account into nonreservable investments such as repurchase agreements.
6. Sweep calculations are based on the amount a depository institution transferred at the initiation of the program. Amounts that have been subsequently transferred at that institution are not available.
7. There were sixteen days in 1995 when the Treasurys overall cash balance exceeded the target Federal Reserve balance plus the capacity in the Treasury tax and loan note accounts, which is comparable to 1994 when this capacity was exceeded on fourteen days.